

We Claim:

1. A multifunction communication system for use with a personal computer, the personal computer having a processor, a memory, and a peripheral data store, the multifunction communication system connected to a caller identification encoded telephone line, comprising:
- 5 a communications module connected to the personal computer, the module comprising:
- 10 communications interface means connected for communicating to the personal computer for transferring data between the personal computer and the communications module;
- telephone line interface means for connection to the caller identification encoded telephone line;
- 15 telephone voice interface means for receiving local voice signals from a local user and for conveying remote voice signals from a remote user to the local user;
- full-duplex conversion means for converting the local voice signals into outgoing digital voice data and for converting incoming digital voice data into the remote voice signals;
- 20 compression means for compressing the outgoing digital voice data into compressed outgoing digital voice data and for decompressing compressed incoming digital voice data into the incoming digital voice data;
- 25 main control means for receiving the compressed outgoing digital voice data from the compression means, for receiving outgoing conventional digital data from the personal computer through the communications interface means, and for multiplexing the compressed outgoing digital voice data and the conventional digital data to produced multiplexed outgoing data;

data and for converting incoming digital voice data into the remote voice signals;

voice compression means connected to the full-duplex conversion means for compressing the outgoing digital voice data into compressed outgoing digital voice data and for decompressing compressed incoming digital voice data into the incoming digital voice data;

main control means connected for

receiving the compressed outgoing digital voice data from the voice compression means,

receiving outgoing conventional digital data from the personal computer through the data interface means,

multiplexing and transmitting compressed outgoing digital voice data with the outgoing conventional digital data, and

passing the the remote voice signals to the second telephone line.

3. The personal communications system of claim 2 wherein the telephone line caller identification interface comprises:

data storage means;

caller identification decoding means;

telephone line switching means;

telephone line connection means;

data comparison means; and

hang up means.

4. The personal communications system of claim 2 wherein the telephone line caller identification interface comprises:

storage means for storing access information;

caller identification decoding means to decode caller identification

information;

telephone line switching means for routing caller identification signals to the caller identification decoding means;

telephone line connection means for maintaining a telephone connection from an authorized caller;

5 comparison means to compare caller identification information to stored access information; and

hang up means for terminating access.

5. The personal communications system of claim 4 wherein the storage
10 means includes means for storing caller telephone number, caller name, time of day, date, number of calls.

6. The personal communications system of claim 4 wherein the caller
15 identification decoding means decodes caller identification information including caller telephone number, caller name, time of day, and date.

~~7. A method for controlling access to a telephone personal communications
system, comprising the steps of:~~

~~preprogramming a memory device with access parameters;~~

20 ~~detecting a phone call;~~

~~receiving caller identification information without answering the phone
call;~~

~~decoding caller identification information;~~

~~comparing caller identification information with access parameters to
25 determine whether access is authorized;~~

~~if access is unauthorized, hanging up; and~~

~~if access is authorized, enabling a connection to the telephone personal
communications system.~~

8. ~~The method of claim 7, wherein the step of preprogramming further comprises the step of programming a list of names of authorized caller names.~~

9. The method of claim 7, wherein the step of preprogramming further
5 comprises the step of programming a list of authorized caller telephone numbers.

10. The method of claim 7, wherein the step of preprogramming further comprises the step of programming a list of authorized times of day to call.

10 11. The method of claim 7, wherein the step of preprogramming further comprises the step of programming a list of authorized days to call.

12. The method of claim 7, wherein the step of preprogramming further comprises the step of programming a list of authorized caller names, days and
15 times of day to call.

13. The method of claim 7, wherein the step of preprogramming further comprises the step of programming a list of authorized caller telephone numbers, days and times of day to call.

20 14. The method of claim 7, wherein the step of preprogramming further comprises the step of programming a list of unauthorized caller names.

15. The method of claim 7, wherein the step of preprogramming further
25 comprises the step of programming a list of unauthorized caller numbers.

16. A personal communications system interface, connected to a telephone line, for screening incoming telephone calls to personal communications system electronics, the internal personal communications system interface comprising:

30 a telephone input port;

a ring detector;

an off-hook circuit;

a dc holding circuit;

a caller identification information decoder;

5 a multiplexer;

a controller; and

a memory device.

17. The apparatus of claim 16 wherein the controller is a processor.

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18. The apparatus of claim 16 wherein the controller is combinational logic.

19. A personal communications system interface, connected to a telephone line, for screening incoming telephone calls to personal communications system electronics, the internal personal communications system interface comprising:

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a telephone input port for receiving telephone signals into the interface;

a ring detector, connected to the telephone input port, for detecting an incoming call;

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an off-hook circuit, connected to the telephone input port, for connecting the personal communications system interface to the telephone line;

a dc holding circuit, connected to the off-hook circuit and the input port, for maintaining a connection with incoming telephone calls;

a decoder for decoding caller identification information and personal communications system data;

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a multiplexer, connecting the decoder to the telephone input port and the dc holding circuit, for selecting telephone signals from the telephone input port for caller identification information decoding and from the dc holding circuit for personal communications system data decoding;

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a controller, connected to the ring detector, off-hook circuit, dc holding circuit, multiplexer, and decoder, for controlling the internal personal

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Abstract